

A Manifesto for Instructional Technology: Hyperpedagogy

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We believe hypertext and hypermedia solidify bold and original ideas having the power to open new realms of creative possibility. Unfortunately, we find the new tools encrusted within concepts borrowed from traditional curriculum theory and instructional design. Our goal in this paper is to liberate hypertext; doing so requires challenging Western metaphysics. We rely on the philosophy of John Dewey to disclose this metaphysics and propose an alternative. The paper reviews dominant models of curriculum, especially Ralph Tyler's, revealing their concealed metaphysical assumptions. Our efforts are greatly aided by Herbert M. Kliebard's critique of the Tyler rationale, exposing the fact that, in spite of its inflated claims, all there is to Tyler's rationale is "the philosophical screen." That is also all we think there is to all the dominant models of curriculum. We show that the philosophical screen is largely comprised of a concealed metaphysics before concluding by showing how hypertext and hypermedia, freed of dogmatic metaphysics, may yield what we call hyperpedagogy, based upon theories of emergent pedagogy and transactional metaphysics.

Computers in the classroom offer exciting and promising educational potential, and one of the most auspicious ideas circulating in the field is hypertext. Hypertext, and hypermedia, actualizes bold and original ideas having the power to open new realms of creative possibility. One of the boldest and most original of these ideas is poststructuralism. Poststructuralist thinking rejects the notions of a fixed and final *telos*, absolute origin, or ultimate fixed center (or foundation) to any process, including learning processes. Unfortunately, structuralist concepts borrowed from traditional curriculum theory squeeze the life out of hypertext. Our goal in this article is to reconceptualize how classroom computing can make appropriate use of the new tools of hypertext. Doing so requires us to challenge some of the most entrenched dogmas of Western thought. We have in mind the metaphysics that emerged in the writings of Plato and Aristotle 2,500 years ago and that has been promulgated ever since. This metaphysics assumes fixed and final *essences* that are the ultimate *telos* of all natural processes, including intelligent inquiry and learning. Structuralist metaphysics further

assumes that ultimate ends and essences regulate the process so it achieves preordained objectives. Supposedly, acorns become oak trees because they have the latent potential to achieve their perfect essence. The same false assumption holds for children's potential for becoming perfectly rational adults. Currently, educational objectives and standards determined in advance of the opportunity for learning provide the ultimate *telos* and the essence of proper learning.

The aim of this article is to nudge those in the field of education who advocate the expanded use of computers in the classroom into a state of discontent and disequilibrium, so that we can chart new courses in the inchoate and evolving globalized digital culture. To do this in the deepest, most disturbing way possible, we must shed light on the cardinal principles of the structuralist metaphysics that has dominated 2,500 years of Western thought by deconstructing its liabilities. Dogmatic metaphysics went largely unchallenged until Darwin proposed the theory of evolution. The word "species" is just the Latin for the ancient Greek word for essence (*eidos*); essences evolve though they have no fixed and final *telos* determined in advance—as should educational objectives.

Our article is a manifesto; it calls for digital technology in education to embrace forms of pedagogy appropriate to hypertext. Hypertext builds upon poststructuralist theories respecting communication, authority, knowledge, and power as well as theories of critical pedagogy. Liberating hypertext to realize its possibilities for emergent learning requires many things. Here, we only strive to free it from the bounds of traditional metaphysics with its assumptions of fixedness and finality. That means freeing how we use computers in education following traditional theories of curriculum and instructional design, all of which have structuralist assumptions about objectives, standards, and the ultimate aims of education. If we are right, hypertext embodies ideas that point the way toward new educational vistas.

We begin with a brief definition of hypertext. Next, we discuss Jay L. Lemke's rejection of traditional educational systems as inadequate for releasing the potential of hypertext. We think Lemke constitutes a good beginning, but hypertext owes a great deal to poststructuralist semiotics, particularly the work of Barthes, Derrida, and Foucault. Therefore, any critique of traditional theories of curriculum and instructional design adequate to releasing the potential of hypertext must expose their structuralist assumptions. These assumptions include a commitment to ultimate foundations, supposedly eternal, fixed, and final essences, and the idea that any activity, including the activity of learning, has a perfect *telos* (e.g., the actualization of the child's potential for rationality).

We have two surprising allies in deconstructing the structuralist assumptions of conventional curriculum and instructional design. One is

Herbert M. Kliebard's (1970/1979) critique of the curriculum rationale of Ralph Tyler's objectives based theory of curriculum that dominates educational thinking right up to today's "standards" movement. Toward the end of his critique, Kliebard turns to John Dewey for support. Dewey is our second surprising ally, especially because it is not difficult to show that his philosophy is poststructuralist (Garrison, 1999, 2001). Structuralism, including structuralist theories of curriculum and instructional design, receives its strongest support from a hidden source, the tradition of Western metaphysics. We show how Dewey's philosophy of education, including his critique of traditional curriculum theory and instructional design relies on his critique of Western metaphysics.

Having come to grips with Dewey's poststructuralism, we examine how poststructuralist thought informs hypertext theory. We will place special emphasis on George Landow's vision of hypertext as a poststructuralist space; Dewey provides an appropriate pedagogy for such a space. Hypertext theories advocate enacting a more pluralistic computer pedagogy than that currently endorsed by proponents of traditional curriculum. Finally, poststructuralism provides a new, more active, critical, and creative reading of texts that deconstruct regimes of power in order to recognize how dominant metanarratives script authoritarian theories of learning. Our goal is to disrupt hierarchies of authority, power, and control in teaching and learning. We hope our article will help to clear the ground for building a poststructural pedagogy appropriate to the needs and possibilities of hypertext and hypermedia.

DEFINING HYPERTEXT

Hypertext is most often defined as digital texts that have hyperlinked nodes, replacing pages and offering multiple paths through texts. This, in turn, takes advantage of computer-mediated communication (CMC) to allow for active learner engagement. Hypertext, therefore, can be highly interactive and responsive to learners' needs. Hypermedia, a corollary to hypertext, means that pictures, movies, and sounds can be included to improve reception with a variety of media. McKnight, Dillon, and Richardson (1996) note that, besides the novel, most texts are read in non-linear ways wherein readers consult dictionaries, appendices, and indexes, to name just a few. While this nondigital intertextuality may be widely practiced, we feel that hypertext may make such intertextual applications easier than in traditional textual practices. We should note here that their vision of hypertext is limited primarily to a computer program, such as HyperCard, that allows for nomadic, brachiated migrations through a limited and predefined text. Their hypertext is one authored by a

designer and content area expert in which users (which are also learners and readers) do not add or subtract from the content. Such limitations from networked communication models and mediated content appreciably curtail how they examine hypertext and what they consider hypertext to be. The hypertext we envision, and will elaborate on in later sections, supposes that users should be able to alter the text, not simply actively navigate through a prescribed text. While we consider active navigation important, we believe that active textual co-construction is equally significant.

LEMKE'S VISION FOR HYPERTEXT: ACTIVE PRACTITIONERS

Lemke (1995a) argues that the ideas behind hypertext and hypermedia are not as radical as some may think. For him, hypertext theory embodies traditional scholarly principles of cross-referencing and self-guided inquiry. Hypertext and digital technologies offer only a quantitative change in how people can conduct learning and research, how scholars communicate, how scholars and students can interact, and how people make sense of texts. Hypertext theory provides a way to take advantage of changes in information technology to make education more dialogic. Lemke stipulates that most scholars use texts not as linear narratives, but as databases from which they selectively gather information. Typical educational systems—up until and often including graduate school—instill linearity and largely unquestioned authority to the text. Hypertext can alter this by fostering scholarly practice much earlier to better prepare not just future academics, but learners seeking to become more critical readers. By critical readers, we mean people who engage texts as multi-nodule resources more so than as linear, authorial works. Scholarly communication, Lemke argues, conforms to a distributed model of communication, a dialogic conversation. Traditional pedagogy, more often than not, is construed as a monologue, a centralized mode of communication with a closed, hierarchical semiotic. Computer mediation can enable efforts to decentralize learning by allowing more voices to join the conversation, including students' questions and answers, engaging an outside specialist, having electronic conference groups, disseminating papers to one another, continuing conversations outside the confines of the classroom, and pooling resources.

The most essential change Lemke (1995a) foresees is a switch from a traditional curricular model to an inquiry paradigm for education. Scholars often write to pursue their own research agendas and complain that their students cannot do the same. Even a cursory glance at the traditional educational system provides part of the answer why. Students are neither trained nor encouraged "to go their own course." Curriculum means the "course" to be run, established well before the learner ever enters the

picture.¹ Outside academia, employers complain that recent graduates are not as self-reliant as they should be. Given that educational institutions increasingly emphasize standardization and authoritative hierarchies, these shortcomings should not really surprise us. The closest education comes to self-guided inquiry is the research paper, but two facets limit its effectiveness: topics chosen by educators and highly artificial audiences. Hypertext presents opportunities for more choice since altering syllabi with electronic publishing is much easier than even 15 years ago and hypertext provides for larger audiences by disseminating papers to peers. Students can disseminate electronic versions of their papers to classmates as part of a course's content. In such a case, the content acts as a dialogue, not a monologue, and such a dialogic atmosphere better respects student voices. In such educational interactions, students share their learning experiences and exponentially expand the learning that takes place. Moreover, the respectful dialogue can help instill values for democratic dialogue in which speakers make their points and listen to others hopefully to find some common ground from which to work toward common goals. We agree with most of what Lemke says, but we think hypertext has the potential to make more than a quantitative change in how we learn, create, and do research. We also think that there is more at stake than simply a switch to an inquiry paradigm for education.

THE CONSTRAINTS OF TRADITIONAL CURRICULUM THEORY AND INSTRUCTIONAL DESIGN

There are many constraints to releasing the creative potential of hypertext and hypermedia. Our paper only considers two: (a) traditional theories of curriculum and instructional design that dominate colleges of education, school districts, and the classroom; and (b) the metaphysical tradition of the West with its emphasis on fixed essences as the final *telos* of all action, including human development. Since traditional curriculum theory contains this metaphysics, we approach this daunting topic from that direction.

We want to expose two serious errors plaguing conventional curriculum theory and instructional design. The first is that they assume we can determine the "objectives" of learning before curriculum development. Fixed and final essential knowledge is the *telos* of all curriculum design much as fixed and final essences are the *telos* of all acorns. Straight-line instrumentalism, or means-ends rationality, is the "logic" of such design. It assumes the ends are entirely separate from the means used to attain them just as knowledge is independent of the inquiry that discovers it. The fault does not lie with practical means-ends reasoning per se. If we think of

means-ends reasoning as a *circle* of functional coordination of means to ends, wherein means and ends *emerge* in the course of resolving some problematic context, we may use the logic without becoming lost.

The second serious mistake involves the social-psychological obstruction arising from privileging learning goals, objectives, and standards defined by the designer as opposed to the needs, interests, and purposes of the student. Psychologically, goals along with means for obtaining them should *emerge* from the student's activities. When the instructor imposes external goals, the student's purpose is not primarily achieving the goal assigned; it is avoiding the punishments or obtaining the rewards associated with the external goal. In a democracy, imposing goals on others is morally dubious. This may seem like the old problem of choosing among teacher-centered, subject matter-centered or student-centered pedagogy. We reject all such notions of centeredness in favor of a hermeneutic circle with an ever expanding circumference and ever changing center. The teacher, the subject matter, and the student are merely useful distinctions among subfunctions of a larger organic whole.

Briefly sketching the history of the ideas that have long guided curriculum development and instruction provides perspective. Modern curriculum theory originated with Bobbitt (1918/1997) who complains that the "inherited system" of education "hampers social progress" (p. 9). It is hard to chart progress without a predetermined end, so he emphasizes a curriculum that prepares students to carry out specific academic functions (p. 10). Above all, we must seek to "define with accuracy the objectives of education" (p. 10). Bobbitt thought we should educate the young to function well in achieving predetermined goals, selected by others, with the greatest efficiency possible. He states the basic idea as follows:

Human life, however varied, consists in the performance of specific activities. Education that prepares for life is one that prepares definitely and adequately for these specific activities. However numerous and diverse they may be for any social class, they can be discovered. This requires only that one go out into the world of affairs and discover the particulars of which these affairs consist. These will show the abilities, attitudes, habits, appreciations, and forms of knowledge that men need. These will be the objectives of the curriculum. (p. 11)

It is easy to identify the false social Darwinism embedded in the idea that we should educate social classes for their probable destinies. Tracking and the differentiated curricula associated with it serve as social sorting machines for a society that avoids critical democratic deliberation.

Walker and Soltis (1997) write, “The performance-based and competency-based teacher education movement of the 1970’s repeated this mode of curriculum construction” (p. 55). The same holds for the “standards” movement today. The enduring appeal of Bobbitt’s approach lies in its recourse to modern notions of rationality, objectivity, and measurement. The promise of permanent progress is also modern, though the reductive methodological assurances of a safe and secure, if narrow, path to a perfect and predetermined teleological essence is ancient.

The most influential theorist of curriculum is Ralph Tyler. Gress and Purpel (1979) note that the “basic elements” of Bobbitt’s “work underlie Tyler’s classic formulation” (p. 237). Tyler (1975/1979) delineates four major tasks that serve as the focuses of curriculum construction. The first task is selection and definition of the learning objectives. Tyler does not impose objectives of his own; instead, as Walker and Soltis (1997) state, “Tyler ... proposes that a school’s philosophy be used as a set of standards to ‘screen’ the objectives derived from this first step in the process. This will ensure that each objective is in harmony with the school’s general philosophy and ideal aims” (p. 56). The assumption is that the school’s “philosophy” establishes the valued objectives for which Tyler has a value neutral tool of means-ends curriculum rationality for achieving. He tacitly assumes the old positivist fact versus value as well as the means versus ends dualism.

The second task involves creating appropriate learning experiences. At first it seems this curriculum task emphasizes the needs, interests, and purposes of the student, but we soon see that the emphasis on the student is mostly a ruse to overcome student resistance:

It is necessary to keep firmly in mind that human learners rarely, if ever, want to be “shaped” by others. Each one has purposes and interests of his own and utilizes much energy and effort to further his purposes and satisfy his interests. If a school activity is perceived as interesting and/or useful for his purposes, he enters into it energetically. (1975/1979)

The strategy is to determine what the student finds *internally* motivating and use it to secure the *external* goals of the curriculum designer. Ultimately, the interests and purposes realized are those of the authorities designing the plan. Such social-psychological obstruction does not lead to an education fit for democratic citizens.

Next comes sequence and integration; Tyler (1975/1979) indicates:

Curriculum makers can also identify significant skills that are sufficiently complex and pervasive to serve as organizing elements

to achieve sequence and integration. And, for objectives involving attitudes, appreciations, interests, and personal commitments, curriculum makers can identify important values that can serve as organizing elements. (p. 251)

This stance assumes the end or objective is detachable from the means used to achieve it. Finally, there is evaluation; the code word today is accountability. Although Tyler does not say so, evaluation presupposes the “philosophical screen” since it requires that we reflect on the values espoused in making our selections of objectives, the means for obtaining them, and their organization.

Walker and Soltis (1997) conclude that the Tyler rationale is “the paradigm, the dominant model of 20th century thought about curriculum design” (p. 55). Nothing has changed in the 21st century largely because the Tyler rationale has all the ingredients characteristic of modern structuralist thinking. These include a firm commitment to decontextualized rationality, progress, theory (or philosophy) as independent of fact, value neutrality, a profound commitment to an external *telos* as the essence of action, and faith in a detached “method” for arriving at whatever we may consider of value. Tyler’s curriculum theory is method’s child and content’s orphan; the dualism—methodological form versus subject matter content—dualism is untenable.

A CRITIQUE OF TRADITIONAL APPROACHES TO CURRICULUM

Herbert M. Kliebard’s (1970/1979) critique of the Tyler rationale exposes the fact that in spite of its inflated claims, all there is to it is a “philosophical screen”; eventually, we will show that this screen is largely comprised of a concealed metaphysics. Kliebard observes that the “most persistent theoretical formulation in the field of curriculum has been the Tyler rationale” (p. 256). He examines the four tasks identified by Tyler discussed above, beginning with the selection of objectives. Kliebard discusses the three sources of objectives identified by Tyler. They are studies of learners, studies of contemporary life, and suggestions from subject matter specialists, all of which are filtered through the “philosophical screen.”

The designer defers to and consults with the subject matter or content specialist. The primary concern is that the content specialist or instructional designer makes decisions based on what he or she identifies as the student’s “probable destination” (Kliebard, 1970/1979, p. 259). Supposedly, educational specialists are wise enough to know where the students are going and what their educational needs are for getting there. Kliebard notes that as a biological concept, the notion of “need” is clear. We need food and water. When we say a student needs a good spanking or a better attitude, the

concept “becomes much trickier” because then “the concept of need has no meaning without a set of norms” (p. 261). Talk about what students need merely cloaks talk about norms and values. Eventually, the philosophical screen determines the value choices of the content specialist and instructional designer and cloaks these decisions behind philosophical assumptions of objectivity and scientism.

As with student’s needs, Kliebard (1970/1979) shows that the needs of contemporary life as a source of educational objectives quickly reduces education to the philosophical screen of the educational specialist making the decision. He then draws the obvious conclusion that “it is philosophy after all that is the source of Tyler’s objectives and that the stipulated three sources are mere window dressing” (p. 262). The philosophical screen is really a smoke screen of false objectivity and impossible value neutrality. Kliebard asserts, “Tyler’s appeal is to divine philosophy, but the effect is equally arbitrary as long as we are still in the dark as to how one arrives at a philosophy and how one engages in the screening process” (p. 263). In the next section, we examine the metaphysics that sanctions the divine philosophy, which prestructures traditional curriculum deliberation.

Kliebard (1970/1979) combines his criticism of selection and organization of learning experiences, steps two and three of the Tyler rationale. Tyler sees learning experiences as an interaction between a student and his or her environment. “The problem,” Kliebard recognizes, “is how can learning experiences be *selected* by a teacher or a curriculum maker when they are defined as the *interaction* between a student and his environment” (p. 264). In his discussion of evaluation, Kliebard quickly identifies the crux of his concern:

Curriculum evaluation as a kind of product control was set forth by Bobbitt ... but product control when applied to curriculum presents certain difficulties. One of the difficulties lies in the nature of an aim or objective and whether it serves as the terminus for activity in the sense that the Tyler rationale implies. In other words, is an objective an end point or a turning point? (p. 265)

Kliebard calls attention to a passage from Dewey (1922/1983); here we expand around that passage:

Our problem now concerns the nature of ends, that is ends-in-view or aims. The essential elements in the problem have already been stated. It has been pointed out that the ends, objectives, of conduct are those foreseen consequences which influence present deliberation and which finally bring it to rest by furnishing an adequate stimulus to overt action. Consequently ends arise and function within action. They

are not, as current theories too often imply, things lying beyond activity at which the latter is directed. They are not strictly speaking ends or termini of action at all. They are terminals of deliberation, and so turning points *in* activity. (p. 154)

It is here we catch our first glimpse of how Western metaphysics influences educational thinking by assuming every action, including human action, has a predetermined *telos* or end. Ends-in-view are merely action plans; they, along with the end actually achieved, arise in the course of action. As Kliebard (1970/1979) observes, “If ends arise only *within* activity it is not clear how one can state objectives before the activity (learning experience) begins” (p. 265).

The actual end achieved emerges in the course of action; only rarely is it the end-in-view with which we begin. Further, ends achieved are not fixed and final; instead, they are “turning points” in activity. Finally, any end achieved has *unintended* consequences. Some of these may prove more valuable than the end we sought; others, however, may prove undesirable. One of the undesirable consequences of a preplanned curriculum is that students may never learn to set their own ends-in-view or to revise them in the context of everyday practice. Surely, citizens never learning to think for themselves is an undesirable educational goal in a democracy.

An end-in-view provides activity with an objective goal; it gives activity foresight and direction, but we must be careful. Dewey (1922/1983) insists, “Ends are in fact, literally endless, forever coming into existence as new activities occasion new consequences. ‘Endless ends’ is a way of saying that there are no ends—that is no fixed self-enclosed finalities” (p. 159). For Dewey, ends emerge in the course of agents (e.g., students) striving to coordinate their activities. Students with differing needs, desires, interests, and abilities, may successfully coordinate their activity in entirely different ways. That is why we cannot determine objectives *entirely* in advance. In the course of inquiry we may learn that the end-in-view with which we began is unobtainable given our abilities, resources, and contextual constraints or that another end may emerge as more worthy.

Those who think there are fixed and final ends are prone to think not only that the means are separate from the end, but also that the end justifies the means. Dewey insists, “Not *the* end—in the singular—justifies the means; for there is no such thing as the single all-important end” (p. 158). Further, the means often constitute the end upon completion just as the brick, mortar, and architect’s plans for a building remain after the scaffolding is removed. Further, builders will almost assuredly modify the architect’s plans, so the architect’s end-in-view and the actual end achieved are never identical. Students should have the same options in planning and redesigning *their* knowledge goals. Dewey’s (1916/1980) basic pedagogical

idea is that we should give students something to do actively, not something to learn passively. We believe hypertext is a very good way to give students something to do rather than something to learn while providing an excellent activity for giving the impulses for communication and social intercourse an outlet. Hypertext, for example, is a creatively contorted road to the kind of reading Dewey describes.

We cannot avoid filtering according to our philosophical screen, though we often avoid self-awareness of the fundamental attitudes, beliefs, and values we employ in making decisions about educational objectives and the means for securing them. Often we do so by appealing to “common sense,” which really means nothing more than the unreflected biases of Western thought. Our philosophy possesses us if we do not critically engage it. Our manifesto seeks to decry common sense, pull aside the conventional philosophical screens, and call for the field of education to think differently. We call such thinking “hyperpedagogy” to distinguish it from the conventional, rationalistic thinking about curriculum and instruction associated with Tyler. This article is for those who think instructional technology, emancipated from traditional curriculum theory, can become more than merely a mechanistic instrument to predetermined ends and will help carry the field of education into a new era.

REFLECTIONS ON THE PHILOSOPHICAL SCREEN: DEWEY’S REJECTION OF CLASSICAL METAPHYSICS

Kliebard’s (1970/1979) criticism helps to expose classical Western metaphysics as the most onerous barrier to releasing the creative potential of hypertext and hypermedia. Therefore, we begin this section by returning to Dewey’s (1922/1980) chapter on “The Nature of Aims” from whence Kliebard drew the quotation previously expanded upon. We are concerned with the idea of aims, ends, and objectives in education, but as Kliebard shows, as with many issues in education, we must first deal with fundamental philosophical questions. What is an objective or aim? Dewey’s answer to this question involves a rejection of almost the entirety of Western metaphysics.

The following passage, which immediately follows the passage cited by Kliebard (1970/1979) earlier, expresses Dewey’s discontent with traditional metaphysics:

When men believed that fixed ends existed for all normal changes in nature, the conception of similar ends for men was but a special case of a general belief. If the changes in a tree from acorn to full-grown oak were regulated by an end which was somehow immanent or potential

in all the less perfect forms, and if change was simply the effort to realize a perfect or complete form, then the acceptance of a like view for human conduct was consonant with the rest of what passed for science. Such a view, consistent and systematic, was foisted by Aristotle upon Western culture and endured for two thousand years. When the notion was expelled from natural science by the intellectual revolution of the seventeenth century, logically it should almost have disappeared from the theory of human action. (pp. 154–155)

The idea that “normal” processes, including the processes of child development, are regulated by a predetermined, teleological end is a piece of ancient metaphysics Dewey thought should not have survived the scientific revolution much less the Darwinian revolution. We hope it will not survive the instructional technology revolution.

We would like to identify the elements of traditional metaphysics working in the above passage. In classical Greek metaphysics, something’s characteristic form, property, or essence was its *eidōs*. *Dynamis* refers to something’s latent potential or power for change; it is the capacity for something to become other than what it is. *Energeia* is the correlative concept of *dynamis*; it refers to the actual as opposed to the potential. It functions to actualize a latent potential (*dynamis*); for instance, a teacher’s actual knowledge of content and pedagogy may actualize a student’s potential for learning. The *eidōs* serves as the end, purpose, or *telos* of the function. *Entelecheia* is closely associated with *energeia*; it is the latent potential to achieve perfect self-actualization. Dewey rejects all of these ingredients of Western metaphysics.

Classical theories of curriculum and instruction, along with theories of development, all assume a “normal” child is much like a normal acorn; both have the latent potential to achieve the teleological perfection of their innate essence. The assumption is that the human essence involves knowledge and rationality; after all, we are *Homo sapiens*, so supposedly, *sapientia* (rational thought) is our essence. An acorn is not an oak tree, but has the latent potential to actualize its perfect essence and become a giant oak. Likewise children have the potential to fulfill their rational essence.

According to Dewey (1909/1977), learning the lessons of Darwin will dramatically alter our thinking, including educational thinking:

The conception that had reigned in the philosophy of nature and knowledge for two thousand years ... rested on the assumption of the superiority of the fixed and final. ... In laying hands upon the sacred ark of absolute permanency, in treating forms [*eidōs*] that had been regarded as types of fixity and perfection [*entelecheia*] as originating and passing away, the *Origin of Species* introduced a mode of thinking

that in the end was bound to transform the logic of knowledge, and hence the treatment of morals, politics and religion. (p. 3)

Instructional technologists have yet to learn Darwin's lessons, so they harness post-modern technology to ancient and medieval metaphysics. Dewey continues:

In living beings, changes do not happen as they seem to happen elsewhere, any which way; the earlier changes are regulated in view of later results. This progressive organization does not cease till there is achieved a true final term, a *τελος* [*telos*], a completed, perfected end. ... This formal activity which operates throughout a series of changes and holds them to a single course. ... To it Aristotle gave the name, *εἶδος* [*eidos*]. This term the scholastics translated as *species*. (p. 5)

Let the seed here be an acorn or a child. Dewey rejects the classical understanding of *eidos* in terms of *telos* wherein the essence is actualized at the perfect end of a process. Dewey does for all essences what Darwin does for biological essences. The influence of Darwin helps us overcome the idea of predetermined latent potential in biology and metaphysics as well as in curriculum and instruction.

There are two other metaphysical ingredients we have yet to discuss. The first (*arche*) refers to ultimate origins, foundations, or first principles. The second, *ousia*, refers to ultimate entity, subject, or substance; often, an entity's substance is its essence (*eidos*). Dewey does the same for the metaphysical concept of the *arche*, as he does for *eidos*:

Hence it may be said that a question about ultimate origin [*arche*] ... is either a meaningless question, or else the words are used in a relative sense to designate the point in the past at which a particular inquiry breaks off. (p. 5)

We may either substitute all the other familiar concepts found in classical metaphysics for "origin" in this paragraph, and thereby give them the same limited, contextualized meaning or simply eliminate them from the philosophical lexicon.

Aristotle identified ultimate substance (*ousia*) with ultimate essence (*eidos*). In his *Logic*, Dewey (1938/1986) asserts, "But the progress of science has destroyed the idea that objects as such are eternal substances. ... It also destroyed the notion of immutable kinds marked off from one another by fixed essences" (p. 130). For Dewey (1925/1981), there is "no substance behind or underlying change" (p. 65). There is no ontological substance underlying a student's change or development either. In Dewey's

philosophy, existence or “nature is viewed as consisting of events rather than substances” (pp. 5–6). Elsewhere, Dewey (1929/1984) remarks, “Religion has also been involved in the metaphysics of substance” (p. 242). We will not discuss ontotheology, but religion strengthens the hold that classical metaphysics has on contemporary thought.

Fixed and immutable essences provide the objectives of all inquiry, including curriculum inquiry. Wherever these essences come to reside, in the transcendental mind, physical nature, culture, or some transcendent realm, they provide permanent centers of externally controlled action. For Dewey:

Neither self nor world, neither soul nor nature (in the sense of something isolated and finished in its isolation) is the centre, any more than either earth or sun is the absolute centre of a single universal and necessary frame of reference. There is a moving whole of interacting parts; a centre emerges wherever there is effort to change them in a particular direction. ... Mind is no longer a spectator ... The mind is within the world as a part of the latter's own ongoing process. (p. 232)

There is no absolute, eternal, and immutable center of existence; there is no absolute frame of reference, and no fixed essence or entelechy. Dewey rejects all forms of epistemology that see human beings as spectators in the universe whose task it is to reflect reality as if they resembled mirrors of nature. For Dewey, we are events participating among other events in an ever evolving, never finished universe. There is no cosmic *telos*, no end of history, and no heaven in Dewey's metaphysics.

Dewey does have a minimalist metaphysics; one that we find useful for the purposes of constructing a hyperpedagogy. An individual is a unique product of prior physical, social, and cultural interactions. As a product of biological interactions (e.g., mating), all human beings inherit genes that individuate them as a unique one-time-only individual in the history of the cosmos. Even if two biological beings could share exactly the same biological inheritance, they cannot occupy the same identical durational-extensional expanse, so their differential experiences soon render them unique. Because of the uniqueness of actual individuals, we cannot specify the potential of a novel interaction until *after* the event, Dewey (1915/1979) concludes:

When the idea that development is due to some indwelling end [*eidos*, *telos*, or *entelecheia*] which tends to control the series of changes passed through is abandoned, potentialities [*dynamis*] must be thought of in terms of consequences of interactions with other things. Hence

potentialities cannot be known until after the interactions have occurred. There are at a given time unactualized potentialities in an individual because and in as far as there are in existence other things with which it has not as yet interacted. (p. 109)

Potentiality is an *active* category of existence that only discloses itself when individuals engage in transaction; it is a *consequence* of these transactions, not an antecedent latent condition.² When two events transact, the actualized (*energeia*) in the one event actualizes the potential (*dynamis*) in the second, and transactionally, the actualized in the second event actualizes the potential in the first. Hypertext is an example of just such a transactive space.

For Dewey, potentiality is not passive, but rather, it is the active power of some individual to change, evolve, and develop. Every individual has potential and may change and develop, but only through transaction with other equally unique actual individuals. All transactions, furthermore, occur within a social matrix that is in many respects a culmination of many smaller transactions. In other words, the individual being and the social matrix are in a dynamic, symbiotic relationship with one another. We need others different from ourselves to grow and prosper. Just as diversity is the key to biological survival and growth, so too is diversity the key to cultural survival and growth. The Darwinian knows the racist is simply wrong.

Hyperpedagogy defies the metaphysics of presence in Deweyan ways that makes his pedagogy surprisingly relevant for a postmodern and poststructuralist curriculum. In hyperspace and time, temporary *eidōs*, *teloi*, *entelecheia*, *arche*, and *ousia* emerge as functions of the learner's ongoing inquiry. We imagine learners actualizing their unique potential as they engage in transactions with other individuals through their texts, videos, and other forms of expression. The hyperworld we imagine has no fixed centers, just pivots or turning points within the activity of learning. Designers of instructional technology that employ traditional theories of curriculum and instruction effectively destroy hyperspace and hypertime. In fact, the hyperworld we imagine merely describes the way the world is for those who have overcome the metaphysics of presence.

GEORGE LANDOW'S VISION FOR HYPERTEXT: A POST-STRUCTURALIST CRITIQUE

Landow (1992/2000) proposes that a paradigm shift in textual technology is currently transpiring in conjunction with poststructuralist sensibilities that we see as amounting to a rejection of Western metaphysics. He points to Jacques Derrida's (1966/1998) theory of deconstruction and Roland

Barthes' (1974/2000) "readerly" text as two theoretical positions transforming how we think about and perceive reality. These perspectives coupled with hypertext lead him to declare "that we must abandon conceptual systems founded upon ideas of center, margin, hierarchy, and linearity and replace them with ones of multilinearity, nodes, links, and networks" (p. 752). These theoretical perspectives and technological innovations affect the character of textuality and narrative structure and the function of reader and writer (or author)—easily translated to student (or better still, learner) and curriculum designer (or teacher) for our purposes. The result is a transactive hyperworld emphasizing, novelty, change, and individuality.

Landow (1992/2000) borrows Barthes' (1974) *lexia* concept that the ideal text is a collection of nodes, networks, webs, and paths having no beginning (*arche*), end (*telos*), or prespecified paths (*entelecheia*/curriculum). It involves transactive collaboration (a co-constructed sign) between the reader (learner, or student) and the writer's (curriculum designer, or teacher) artifact.³ Access requires no predetermined gateway (*arche*) and emergent connections, meanings, and essences (*eidōs*) are largely dependent upon the reader's purposes. Subject matter, curricular content, or the substance (*ousia*) of the text evolves from transactions among learners, teachers, and subject matter that are part of a larger environment including school policies, parental inclinations, and cultural habits. Notably, the essence we refer to here is not an immutable metaphysical singularity, but is multifaceted and constantly mutating. These same suppositions hold equally for the ideal learning environment. The ideal classroom does not have a true beginning or end but should be a continuation of what a student has previously experienced and will most likely experience in the future. Dewey (1916/1980) defines such recursive learning as growth:

When it is said that education is development, everything depends upon *how* development is conceived. Our net conclusion is that life is development, and developing, growing, is life. Translated into its educational equivalents, that means (i) that the educational process has no end beyond itself; it is its own end; and that (ii) the educational process is one of continual reorganizing, reconstructing, transforming. (pp. 49–50)

Dewey's concept of nonteleological development resonates with the poststructuralist assumptions of Landow's conception. As we have previously noted Dewey's educational philosophy is, *de facto*, poststructuralist.

Hyperlinks can be internal or external to a text. In fact, the determination of what is internal and external is a contingent, functional distinction; it is a property of the individual learners' inquiry and not a proprietary or epistemological privilege of the writer, curriculum designer,

or teacher. Connections to semantically related ideas should not be constrained to what is perceived as “on task” by the teacher or designer. Intertextuality, references to other texts, seriously curtailed by the technological limitations of print culture and philosophical assumptions of modernity imbued with a teleological epistemology, become commonplace with hyperlinking and the ready availability of texts in digital worlds. In the moving whole of transacting parts, a text’s center may emerge anywhere, but tends to frequently involve the purposes of the learner rather than the curriculum designer. Distributing the transient centers, or pivots, of action also distributes authority more equitably between the student (learner, reader) and the teacher (curriculum designer, writer) in making sense of the text. Hence, meaning making becomes an emergent transactional process.

Hyperpedagogy opens education to more divergent voices, borrowing here from Bakhtin’s (1934/1998) “heteroglossia”, and reduces the strictly enforced normative hierarchies with their predetermined objectives. When the learner’s purposes compete inequitably with those of the curriculum designer, some of the more disturbing aspects of curriculum as a “disciplinary technology”, as described by Foucault (1977), become evident. Teleological goals such as standardized entrance and exit exams—gatekeepers—act as a normalization strategy. The dominance of belief in ultimate origins (*arche*), final forms (*eidos*), and predetermined perfect ends (*entelecheia*), leads to a need for normalization within the educational system. In the structuralist ethos there is a metaphysics of power, discipline, and punishment as well.

Ironically, in a democratic society our system enforces a belief in totalitarian authority, thereby creating “docile bodies” (Foucault, 1977) dependent on external authority for meaning and the essence of learning. In a healthy democracy, one would expect more equity, a decentralization of power, and a problem-posing pedagogy that enables active participants in an ever evolving process. The active learner engages in metacognition, inherently questioning the privileged status of authority figures such as authors, curriculum planners, and teachers. In hyperpedagogy, the text and its inexorable link to institutional education will evolve into a mediated and emergent montage of transient functional centers within curricula that emerge wherever there is effort to change the direction of the transacting whole. As Derrida (1966/1998) shows, the text’s center is not the inexorable “transcendental signified” at once outside the text’s borders and controlling it at the same time. Rather, a hypertext has multiple centers located within its network determined by users’ purposes as well as those of the maker. No primary, fixed, organizational axis, no absolute *telos*, no fixed essence, or solid substance, exists outside the text to act as final interpreter; structure emerges from users’ *jeu*, or free play, as part of the transaction.

We believe hypertexts are forms of “congealed labor.” Dewey (1925/1981) states that “a tool is a thing used as means to consequences, instead of being taken directly and physically” (p. 146). Tools are functions we make from direct physical existence (perhaps using tools we have already created) to serve as means to our ends. What we admire most about hypertexts as tools is that we may easily retool them to fit the individual inquirer’s purposes. Although there are event contingencies derived from prior creative inquiry, hypertexts lose little of their event quality. An event is comprised of many possible events, depending on how a given individual chooses to navigate the space. Linguistic meanings and logical essences are not immediately given in place or time. Rather, they emerge wherever they have consequences. They defy the metaphysics of presence.

Respecting transitory emergent centers and creative applications for educational computer practices, an alternative use for computers in the classroom can be gleaned from Florida’s innovative College Reach-Out Program (CROP). The purpose of CROP is to identify and recruit economically disadvantaged students to help them see college as a realistic option in their educational vistas. Pearson (2002) found that most of the participants have used computers as preparation for standardized tests using low-order cognition drill and practice applications. Pearson discovered that students in the program, contrary to preconceived expectation, delighted using computers for high-order cognitive purposes. In this case, they created movies using Apple’s iMovie software with great success and consequently felt a sense of empowerment. Instead of seeing computers as an aspect of dreaded drudgery, they became a place to explore, to help one another, and to excel. Conventional thinking would have at-risk students prove themselves in standardized, highly disciplinary educational activities *before* being allowed to use the computers for active creation. Pearson’s findings turn such conventional thinking about computer use on its head. Instead of relying on computers to discipline marginalized students, the agency gives these learners a sense of active participation that underscores the lofty goals of social justice pedagogy and hypertext. The students were able to master the technology without being steered into a confining, teleological curriculum. In fact, we concur with Pearson that the agency yielded to the students, allowing them to negotiate their ends and means, illustrating that more active learner participation occurs in less structured environments dependent on high-order cognition.

Additionally, if we want to teach an interdisciplinary course, hypertext facilitates collaboration where a group of teachers can post materials or transact simultaneously with a class on-line. The variety of teaching tools and materials are exponentially increased with transactive programs such as Macromedia’s Director and links to such sites as the *Oxford On-line Dictionary* (OED). Adding contextual materials from various disciplines becomes a

relatively simple task. We can also expose students to current research (including our own) through on-line journals to exhibit how materials are in praxis not static bodies of fixed knowledge.

Students become more active, inquiring readers in a hyperpedagogical environment by choosing their paths and by adding to the network; they may even create their own unique essences in pursuit of their own objectives. This itself is a cause for celebration. All too often today we hear the call for standards-based, high-stakes testing education that assumes knowledge is a fixed commodity students need to consume and display on an appropriate test. Knowledge, like a Darwinian species, becomes dynamic and evolving. The sooner students experience knowledge in context and in action—using metacognitive skills—the better for a democratic society. Students need to be critical thinkers before all else if they are to be active participants in a democratic process. We need to pursue a system that encourages the participation of students' voices. Students who see purpose and agency in their education are more likely to respond favorably to their education and their responsibilities as citizens.

Students should become more than inquiring readers; they must become creative co-authors, responsible for adding content to a dynamic, living organism. For example, students conduct and present research to their class, which can be easily archived for later classes as annotations and examples. Students blazing their unique paths need to make connections and defend their choices as important and appropriate. In short, students begin to act more like their teachers, thereby diminishing the sense of otherness that often discourages our best efforts to instill values predicated on self-worth and democratic agency. A caveat here is that this unique trailblazing may lead to en masse solipsism. Thus, teachers must encourage communication both in the classroom and the larger community. Students can tailor materials for their purposes where they do not have to feel that some system of timeless, immutable essences lies beyond them (as the perfect *telos*) or beneath them as the ultimate foundation. They can also drill using programs that react to their needs much better than a one-size-fits-all drill book could do and better than asking a teacher how to do something in class, which can cause embarrassment. And a hyperpedagogical environment can circumvent the problem of teachers not having enough time to address differing learners' special needs. In such learning environments, individuals may actualize their unique potential rather than becoming socially sorted, standardized units of human capital being prepared as components in a consumerist society.⁴

Mazcyk (2002) illustrates how computers in education often serve oppressive socializing roles. He comments on how Integrated Learning Systems (ILS) tends to ignore cultural context. Mazzyck writes that ILS tends to disregard the cultural matrix of the intended learners. Hypertext, by

virtue of its assumption that education is a cultural practice transacting values and norms among learners and teachers, posits that without the inclusion of cultural receptivity education is likely to fail. Therefore, we agree with Mazyck when he declares that for ILS to be effective it must consider the students' (a) general ability level, (b) previous experiences, (c) expectations of instruction, and (d) perceived relevance of instruction. To do this, he suggests that ILS designers, and by extension curriculum designers, should do the following: (a) observe sample student groups in various settings to get an appreciation of local norms and values, (b) question students regarding their cultural practices and preferences, (c) question students' parents and outstanding local leaders about cultural practices and preferences, (d) conduct receptivity research with diverse local student populations, and (e) explore current research on target audiences. As such, cultural acceptance and collaboration are much more likely to take place than if one simply assumes that one curricular model is equally appropriate for all learners. This is an example of reading the educational context as a matrix.

RECONFIGURING TEXT AND THOUGHT: HYPERPEDAGOGY

We concur with Landow (1992/2000) in speculating on the future of hypertext as a tool of teaching and learning. The computer and the Internet can help us break away from the bounded, linear, centered, and fixed way of thinking entrenched in print culture since Gutenberg's revolution and in the metaphysics of Western culture since antiquity. By offering a technological means for reading in an unbounded and decentered manner, along multiple paths, hypertext assumes no predetermined objectives. In hyperpedagogy, classic suppositions about ontology as fixed and final essences (*eidos*), and epistemology as coming to know those essences as the predetermined *telos* of all inquiry, become confounded. When authors, teachers, or curriculum planners (to say nothing of state bureaucrats with their standards of learning), no longer stand forth as the sole authority in a work, learning can become an endless process of democratic inquiry wherein essences emerge to fit the purposes of individual students and communities.

What then will these revolutionary hypertexts look like? They will have certain functional properties displayed along a continuum; they will be dispersed, anti-hierarchical, and unbounded. The dispersed text will link to other texts transactionally. Instead of having to look up a term in a dictionary used in the *primary* text, one can use the cursor to find the meaning of the word in a dictionary that is already part of a metatext. This property weakens the concept of text as unique and centered, having a

univocal meaning, being a product of inspired genius, controlled by an authority, or as a cultural artifact that gathers dust. The boundaries of a text will blur, so we will not so much consider Shakespeare's second quarto of *Hamlet* a good version and the first quarto a foul copy, and the associated critiques and explanations as secondary to the main text, but rather all taken together as constituting a larger evolving social event. Variation will cease being an academic sin. The second quarto, albeit a heavily edited one that is supposedly Shakespeare's autograph, may well serve as an enduring functional center but would not eclipse variations and associated texts as having lesser meaning or being wrong or trivial.

We put faith in the idea that hypertexts will help us overcome eschatological assumptions about what is a good text and what is the real text as the essence of the matter of study. Finally, hypertextuality's absence of textual borders and fixed hierarchies can promote participatory democracy as a lived experience. In texts with blurred boundaries, the role of the user/reader becomes much more powerful than in the linear, bounded, fixed, and final text, so active readers may learn how to act as participants rather than just recipients in a social network. Hypertexts inspire integration rather than segregation of ideas and texts.

The distribution of text and its implications is one of the ways we can differentiate print from digital text. The printed text provided for a much broader audience than its manuscript counterpart, especially after the steam press came into being. However, this technological paradigm had other influences on culture such as the privileged position of the author (from the Latin *auctores* or authority on a subject, particularly theological). The printed text boosted literacy, ideas of a free intellect, and the sanctity of the individual, yet this individual is not as authoritative as the text. Hypertext and hypermedia promote the kind of play in a transactional hyperspace that permits novelty, change, and the emergence of democratic individuality. Our transactions with this tool involve a complex matrix of possibilities and impossibilities.

Four aspects of hypertext may do much to help tear down the myopic edifice of Western metaphysics (a) dematerialization, (b) manipulability, (c) new discourses, and (d) textual dispersion. With respect to dematerialization of texts, one can reproduce virtual copies almost instantaneously for nearly any reader. The significantly reduced cost of individual texts (keeping in mind that one has access to a networked computer), the access to typically hard-to-find texts (such as those either out of print or in the holdings of some remote, limited access library) becoming much more available, and the ability to search multiple texts at once (including reference materials and critical observations) can dramatically affect how people come to comprehend texts. The fact that copies of text can be stored within electronic databases offers dramatic possibilities for wider

distribution, safer textual preservation, and access to rare texts such as a digitized *Beowulf* or a scanned Renaissance manuscript that limit the risk of damaging irreplaceable texts.

The notion that almost any user can manipulate a text according to his or her interests undermines the author's vaunted position. Concordances will become dynamic and in much greater touch with users. Texts will no longer seem so stable, substantial, isolated, and owned; they will be dynamic, concrete, multi-voiced. Additionally, the notion of individual property will become the subject of greater debate. The balance of power between author (curriculum designer or teacher) and reader (learner or student) and work will shift toward the reader in digital texts, though at any moment it may reside anywhere. Correspondingly, the reader will have more freedom within a text's framework and more responsibility for its construction. Barthes' readerly text expects more from the new, more inquiring reader than the Gutenberg counterpart of the past. The greater ease of meandering through and altering a text can instill a greater sense of agency in users; however, such flexibility also requires acclimation to reading in such a decentered cosmos. Moreover, educators have the ethical obligation to help learners become progressively more suited to such a malleable environment.

Hypertexts have the potential to become multivoiced and transactional, with ongoing conversations occurring throughout a text's nebulous framework. Such potential can lead to novel forms of discourse in education in which students have a greater responsibility for the direction of the classes in which they participate. As Landow (1992/2000) asserts, the circulation of ideas will rapidly accelerate, especially for research scholars. Electronic discussion list participants have already opened debates beyond the normal journal and conference circuit with many more voices contributing. Lemke (1995b) argues that in turning to multi-voiced social discourse, a dialectical as opposed to analytical paradigm, we can peer into society's mechanizations not as representing the way things should be, but rather as showing how a society and its participants are involved in a constantly evolving and emerging transaction. For example, Lemke (1995a) claims that hypertext can aid students' emulation of how practitioners communicate as peers. David Harvey (1996) promotes phenomenological, hermeneutical, and dialectical traditions as a way to confront positivism, naïve empiricism, and historical materialism. He emphasizes that reality is an event, a flow of and flux among processes that disperses ideals of fixed centers, essences, independent a priori structures, and intelligently organized systems. Such an understanding "transforms the self-evident world of things with which positivism and empiricism typically deals into a much more confusing world of relations and flows that manifest in things" (p. 49). Moreover, the Cartesian dualities between mind and body, consciousness

and materiality, thought and action, theory and practice “have no purchase” (p. 48).

Finally, Landow and Delaney (1993) argue that we are confronted with a durational-extensional dispersion of texts—what they call a “docuverse” of related texts (p. 15). Digitized texts smash the containers of the traditional text so that readers and others can form their own hypertexts according to their needs, interests, and purposes to form an eclectic cornucopia of what is available virtually. Covers and a spine no longer bind conventions of what a text is, once we enter hyperspace and hypertime. We no longer have to accept an author’s bound work as a singular, fixed, and final artifact. In a Darwinian universe, hypertexts capture the complex, iterative, and amorphous nature of living more honestly than their print predecessors.

Landow and Delaney (1991) foresee three challenges that hypertext forces us to confront: (a) the assumption that a change in media does not warrant a change in epistemology and ontology⁵, (b) no one can claim mastery over a singular and unified text, (c) educators cannot assume that readers have read the same text. This collage of texts offers evolutionary progress within educational frameworks, but it also requires teachers to remove the mantle of mastery. Epistemological and ontological concepts of theory, literature, self, power, property, and pedagogy all have to be addressed. Structuralist paradigms will seem oddly out of place in a hypercontext, but what is to follow remains largely a mystery because hypertext calls for an emergent and co-constructed reality. We do not view this nebulous future so much as a dilemma as an opportunity to understand reality as an evolutionary process of eventful ebbs and flows.

The second challenge—that students will create texts dependent on their needs, interests, and purposes by choosing their own individual paths within networks—poses a problem to the image of the teacher as both subject matter master and disciplinarian. If we truly desire independent, active, and responsible students, we must deny the curriculum designer’s desires to control the learning environment. Given how we typically learned and what our students have typically acclimated to, this is a difficult proposition that can invite abuse. Students unwilling to share responsibility or intimidated by this prospect can undermine our best efforts. Additionally, teachers reallocating authority to a broader context can experience anxiety. This transition will not be easy and may lead to adverse side effects, but we hold that the benefits are worth the risks.

The third challenge is what are we to do when no one has read the identical text? Many may have read similar elements, but no one, including the teacher, is at the center, so no one is responsible for the entire, self-enclosed work because it will not exist. Does the absence of a stable text open the door to the possibility our being deceived by someone who has not read anything at all? Not necessarily—we might all agree to start from a

common ground of shared meaning and remain in contact throughout the experience by adding, say, annotations of what we have read. These annotations can serve multiple purposes. For example, some students may start to traverse pathways others have blazed and then branch off on their own. Students in making their annotations actively conduct research and work on their writing process, thereby reducing the likelihood of plagiarism while encouraging practice in the process of writing. Students may do what academics do, immersing themselves in the larger ethos of an academic field—be it literature, math, or politics—thereby lessening the sense of cultural alienation, which is an important goal in a truly pluralistic democracy. Students practice metacognitive skills by making strategic choices and testing their hypotheses. Students hone their skills of inquiry by practicing them through collaboratively constructing a text; they also practice their democratic skills by participating in their own education as electors. By making participatory decisions about their lives, they make such decision-making skills part of their embodied practice and learned through recursive social and textual transactions. In sum, how can we expect an authoritarian public schooling system to instill responsible, active democratic behaviors?

AVOIDING CHAOS IN HYPERSPACE: SCAFFOLDING

Given the ways in which multifaceted digital text differs from authorial print works, we must exercise a certain caution about how it will alter the pedagogical environment. Hypertext affects how we teach, learn, design curriculum, and negotiate networks of power. As teachers, we know that developing course materials is an emerging endeavor from year to year or even from one assignment to the next. It is also a laborious process, especially if one designs an adaptive curriculum that allows for student input and manipulation. Hypertext allows us to save materials for later and various adaptations, so that we can continue to offer texts that go out of print, or parts from larger texts whose entirety are not practical in the limited duration of a class. In effect, hypertext permits students to choose from a pool of texts, providing them freedom *and* the responsibility of choice. Certainly, worries about students getting lost in a chaotic, unbounded hypertext cosmos are justified, especially given their acclimation to hierarchical, structuralist pedagogies. Therefore, we believe that hypertexts initially require scaffolding—to what degree depends on the learning environment including the learners' dispositions, the teachers' dispositions, the ability of both, and the level of technology available. By scaffolding, we mean something like Rosenshine & Stevens' (1992) method for preparing learners for higher-level cognitive strategies in loosely structured learning environments. They stipulate that learners' individual

readiness levels for the intended learning need to be assessed, that the instruction needs to be modeled, that students' agency needs to be promoted by removing well-defined structures, and that "just-in-time" interventions should occur when learners become stuck or frustrated. They also promote collaborative work in which students aid one another and presentations in which accomplished students exhibit what they have done to help less accomplished students overcome difficulties.

We should note that by scaffolding we do not wish to impose an adult *telos* on a child's development. Wary that the scaffolding metaphor may restrict learners from achieving a predetermined goal, Griffin and Cole (1984) warn that:

The scaffold metaphor leaves open the questions of the child's creativity. If the adult support bears an inverse relationship to the child's competence, then there is a strong sense of teleology—children's development is circumscribed by the adult's achieved wisdom. (p. 47)

The scaffolding we envision for hypertext is not a lock-step, externally imposed linear order that leads learners to preset goals as the immutable *telos* of the learning process. Scaffolding presupposes a philosophical screen that the designer should eventually expose to the students' critique. We see scaffolding as a means of acclimating students to a hypertext learning environment, as a means of supporting students so that they do not feel abandoned. As students become more active and self-assured in a hypertext environment, more structure can be removed to allow for greater creativity and commensurate responsibility.

CONCLUDING REMARKS

Hypertext and hypermedia offer exciting possibilities for poststructuralist education, possibilities that deny the entrenched hierarchical ideologies of structuralist modernism. Traditional curricula, as espoused by Tyler and other social efficiency advocates, hamper creative possibilities by subscribing to teleological and predefined goals. Digital technologies offer means to make education serve multiple purposes and to fine-tune curricula to meet diverse purposes. Bounded curricula tend to emphasize rote memorization, lock-step methods, and alienate more learners than they embrace. We need curricula designed for a greater range of learners so that they feel honestly valued and involved, curricula that are not culturally monolithic, that do not subscribe to class discrimination, that do not endorse homophobia, and that do not denigrate alternative learning styles.⁶ We must utilize the flexibility inherent in digital technology so that one curriculum does not dominate the individual student.

The metaphysics that buttresses a structuralist curriculum, making a back-to-the-basics curriculum seem commonsense, needs to be critiqued so that students themselves can see the value of critical engagement in education. When someone proposes a curriculum that assumes fixed and final values and predetermined ends, it assumes that everyone should share such eternal and universal values. We need to deny such teleological metaphysics if we truly want “no child to be left behind.” A traditional pedagogy, based on Bobbitt’s curriculum and Tyler’s rationale, needs scrutiny, as Kliebard has done, to expose its inadequacies for a pluralistic society and its educational system. Dewey’s theory of curriculum offers an alternative to curricular impasses regarding dominant culture-centered versus child-centered dichotomies and linear, objective driven curricula. We agree with Dewey when he writes that we need to “abandon the notion of subject-matter as something fixed and ready-made in itself, outside the child’s experience” (p. 239).

We believe our manifesto raises key issues about modernist and hegemonic education and that hypertext offers a possibility for a more encompassing and empathetic approach to learning. We see great opportunities for e-learning when juxtaposed with poststructuralist and socially progressive curriculum theories. Computers should not be used simply for low-order cognition, but rather for activities that allow students to learn, explore, and share. Technology should free students to create their own unique essences in the learning process rather than have their essences proscribed by a teleological value system of predetermined fixed ends. In order to refute the manifestly normalized teleological curriculum of the last century, we can look to Dewey’s thoughts on education and Landow’s vision for hypertext. We call for a pragmatic educational system that relates goals to the learners’ emerging values, beliefs, and prior experiences.

We have shown the traditional curriculum theory contains a concealed metaphysics that is incompatible with the poststructuralist character of hypertext and hypermedia. Once freed of dogmatic metaphysics, and structuralist curricula, hypertext supports a more emergent and creative pedagogy that we call hyperpedagogy. A more complete theory of hyperpedagogy would require that we engage issues of curriculum, e-learning, and social justice, but that is a task for another paper.

Notes

- 1 Curriculum, derived from the Latin *currere* meaning “to run,” can be defined as running the course, like a horse limited to the bounded circuit of Churchill Downs. The

intent is to create a level playing field within which all competitors have an equal chance of crossing the finish line first. The theory that underlies this master narrative proves problematic in many respects: first, competition is assumed to be an educational norm; second, extracurricular influences (ethnicity, native language, family socio-economic status) are largely ignored as are intercurricular (unequal school districts) and intracurricular (tracking) differences among schools; and third, that students progress within a highly bounded context will have a direct correlation to their post-academic, less highly structured, lives. The myth of the level playing field undermines many of the best efforts for a more pluralistic society.

- 2 Eventually, Dewey, with his collaborator Arthur F. Bentley (1949/1989), developed a theory of “trans-action.” We will use transaction rather than interaction in the remainder of our paper.
- 3 Barthes (1977/2000), in “From Work to Text” located within *Image—Music—Text*, notes that a work exhibits modernist, print culture assumptions of book and author as respectively a closed artifact and as the master of the material, whereas a text manifests itself as a collaborative effort between reader and writer and as an open-ended, living endeavor. We will use this distinction to emphasize the epistemological assumptions associated with each.
- 4 Lest the Marxist rhetoric seems misplaced or overplayed, one should look to Marshall’s (1997, 1999) examination of the global influence of neo-liberal busnpower. He cites the normative discourse that we live in an information age and information society, so the job of education is to prepare students for economic and social success by teaching a reformed curriculum. This reformed curriculum invariably centers on the new global economy in which information societies are fighting for ascendancy. The distinction between traditional liberals, advocating education as a social equity function, and neo-liberals lies in the latter’s acceptance of a dominant and hierarchical information culture. While traditional liberals lambaste standards movements that do not take learners’ needs and backgrounds into context, neo-liberals accept the assumption that education needs to have a highly normalizing effect. The underlying myth of global capital needs being foremost goes largely unquestioned.
- 5 Russell (1997) writes that two competing ontologies for hypertexts exist: one informed by information technologies and computer science related to positivist philosophies; the other by literature and art theories in conjunction with poststructuralist philosophies. This leads to such differing claims about hypertext as Tergen’s (1997) that hypertexts tend to perform poorly in educational settings. He bases his claims on standardized test comparisons between control (linear, print based instruction) and experiment groups (hypertext, nonlinear instruction). The underlying assumption here is that a standardized test is a valid means to evaluate learning. If we limit learning to being defined as information assimilation and retrieval as Human Information Processing posits, then Tergen is right—hypertexts are inferior educational tools. If, however, we are skeptical of test as indicators of learning, as we are, then we need to develop novel means of evaluation that reflect an alteration in our conceptions of epistemology.
- 6 We note that these chronic shortcomings in structuralist pedagogies as an invitation for further dialogue. At this time, we have chosen merely to broach the subject of social justice pedagogies, but see great potential for hyperpedagogy to address issues raised by Bailey (1996), Boler (1999, 2001), Doll (1993, 2001), Freire (1970/2000), Haraway (1991/2001), Katz (1998, 1999), Sedgwick (1990), and Stone (1992/2000) respecting gender, race, and sexual preference difficulties frequented in cyberculture. See also Dwight (2002a, 2002b).

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